

## Message Text

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PAGE 01 STATE 189488

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ORIGIN IO-04

INFO OCT-01 ISO-00 /005 R

66011

DRAFTED BY:IO:SCT:LNCAVANAUGH

APPROVED BY:IO:SCT:LNCAVANAUGH

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R 302027Z JUL 76

FM SECSTATE WASHDC

INFO USMISSION IAEA VIENNA 6481

UNCLAS STATE 189488

FOLLOWING TELEGRAM FROM TOKYO DATED JULY 28, 1976  
SENT USERDA HQ GERMANTOWN MD, USERDA HQ WASHDC INFO SEC-  
STATE WASHDC IS REPEATED TO YOU: QUOTE

UNCLAS TOKYO 11329

ERDA FOR SIEVERING

E.O. 11652: N/A

TAGS: TECH, JA

SUBJECT: JAEC'S NUCLEAR FUEL CYCLE-RELATED FIGURES PROJECTION

1. ON MAR 12, 1976 JAEC ESTABLISHED NUCLEAR FUEL CYCLE  
PROBLEM COUNCIL TO IRON OUT NUCLEAR FUEL CYCLE PROBLEMS IN  
JAPAN. COUNCIL SCHEDULED TO DRAW UP INTERIM REPORT THIS  
SUMMER.
2. PENDING ISSUANCE REPORT FOLLOWING INFORMATION GIVEN TO  
ERDA BY AEC DURING RECENT VISIT CONGRESSMAN ANDERSON.
3. JAPANESE NUCLEAR POWER CAPACITY ESTIMATE ON WHICH NUCLEAR  
FUEL CYCLE-RELATED PROJECTIONS BASED, DIVIDED INTO THREE  
CATEGORIES: 1) HIGH, 2) MIDDLE, AND 3) LOW. THE  
HIGH PROJECTION IS AN OPTIMISTIC ESTIMATE OF THE LONG-RANGE  
TARGET; THE MIDDLE PROJECTION IS BASED UPON THE EXTRAPOLATED  
DEVELOPMENT OF NUCLEAR POWER GENERATION BY LWR'S ONLY AND  
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PAGE 02 STATE 189488

OMITS ADVANCED-TYPE POWAR REACTORS; THE LOW PROJECTION IS MORE

CONSERVATIVE.

#### NUCLEAR POWER PLANT CAPACITY PROJECTION (GWE)

|      | HIGH | MIDDLE | LOW |
|------|------|--------|-----|
| 1985 | 49   | 35     | 27  |
| 2000 | 200  | 150    | 100 |

THE PRESENT TOTAL INSTALLED CAPACITY OF JAPANESE COMMERCIAL POWER PLANTS IS 6.6 GWE. THEY ARE ALL LWR'S, EXCEPT ONE 166 MWE GCR.

4. THE PRESENT NUCLEAR FUEL CYCLE-RELATED FIGURES ARE BASED UPON THE MIDDLE CASE. ANNUAL, NATURAL URANIUM REQUIREMENTS (WITH CUMULATIVE SUMS IN PARENTHESES) ARE METRIC TONS URANIUM 1,700 (2,000) IN 1975; 7,000 (44,000) IN 1985; AND 25,800 (281,000) IN 2000. OTHER DATA IN ANNUAL QUANTITIES ARE AS FOLLOWS:

|      | URANIUM ENRICHMENT<br>(TONS SWU) | REPROCESSING<br>(TONS) | PLUTONIUM STOCK<br>(FISSILE TONS) |
|------|----------------------------------|------------------------|-----------------------------------|
| 1975 | 781                              | 100                    | 2                                 |
| 1985 | 3,530                            | 675                    | 25                                |
| 2000 | 14,341                           | 3,338                  | 206                               |

5. MAJOR ACTIVITIES FOR FUEL CYCLE SELF-DEPENDENCE INCLUDE URANIUM ENRICHMENT BY CENTRIFUGE PROCESS, SPENT FUEL REPROCESSING AND WASTE MANAGEMENT. ON ENRICHMENT, CENTRIFUGE CASCADE TESTING IS CURRENTLY UNDER WAY AND WILL BE FOLLOWED BY CONSTRUCTION OF A PILOT PLANT DURING 1977 THROUGH AROUND 1980, CONSTRUCTION OF A DEMONSTRATION PLANT AROUND 1981 THROUGH 1984, AND CONSTRUCTION OF AN INTERNATIONALLY COMPETITIVE COMMERCIAL PLANT AROUND 1985 THROUGH 1990.

6. THE FIRST REPROCESSING PLANT (210 TONS PER YEAR), IS NOW UNDERGOING A COLD TEST RUN AND NECESSARY MODIFICATIONS. THE PLANT IS EXPECTED TO START OPERATION IN THE SPRING OF 1978. NOTHING DEFINITE HAS BEEN DECIDED UPON ON A SECOND JAPANESE REPROCESSING PLANT. SUBJECT TO AMENDMENT OF THE LAW TO PERMIT REPROCESSING BY THE PRIVATE SECTOR, IT IS ANTICIPATED THAT THE SECOND PLANT, 1,500-TON PER YEAR CAPACITY, WILL BE CONSTRUCTED BY THE PRIVATE SECTOR FROM AROUND 1981 SO THAT IT CAN START OPERATION IN 1987.

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PAGE 03 STATE 189488

7. IN WASTE MANAGEMENT, A PILOT PLANT FOR HIGH-LEVEL WASTE GLASSIFICATION IS TO BE CONSTRUCTED WITHIN THE NEXT TEN YEARS, MOST LIKELY 1982 THROUGH 1985. A COMMERCIAL PLANT IS PLANNED TO BE CONSTRUCTED DURING 1987 THROUGH 1991.

8. ADVANCED-TYPE POWER REACTORS NOW BEING DEVELOPED OR PLANNED ARE ATR, FBR AND HTGR. THE PROTOTYPE ATR, "FUGEN" (165 MWE) IS UNDER CONSTRUCTION AT TSURUGA AND IS EXPECTED TO GO CRITICAL IN

1977. LARGER ATR'S FOR DEMONSTRATION AND COMMERCIAL USE ARE UNDER EVALUATION. POSSIBLY, A DEMONSTRATION ATR WILL BE CONSTRUCTED DURING 1981 THROUGH 1985, AND A COMMERCIAL ATR WILL BE DEVELOPED FROM AROUND 1984.

9. THE EXPERIMENTAL FBR, "JOYO" (50 TO 100 MWT) IS UNDER CONSTRUCTION AT OARAI AND IS EXPECTED TO GO CRITICAL IN LATE 1976. PREPARATIONS ARE BEING MADE FOR CONSTRUCTION OF THE PROTOTYPE FBR, "MONJU" (300 MWE) DURING 1979 THROUGH 1984. POSSIBLY, A DEMONSTRATION FBR WILL BE CONSTRUCTED DURING QOY THROUGH 1990 AND A COMMERCIAL FBR FROM AROUND 1989.

10. CONSTRUCTION OF AN EXPERIMENTAL MULTIPURPOSE HTGR (50 MWE) IS PLANNED FOR 1979 THROUGH 1983. POSSIBLY, A PROTOTYPE HTGR WILL BE CONSTRUCTED DURING 1986 THROUGH 1990 AND A DEMONSTRATION HTGR DURING 1992 THROUGH 1996.

11. FOR FBR FUEL REPROCESSING, CONSTRUCTION OF A TEST FACILITY IS PLANNED FOR 1981 THROUGH 1985. POSSIBLY A COMMERCIAL PLANT WILL BE DEVELOPED FROM AROUND 1993.  
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## Message Attributes

**Automatic Decaptioning:** X  
**Capture Date:** 01 JAN 1994  
**Channel Indicators:** n/a  
**Current Classification:** UNCLASSIFIED  
**Concepts:** DATA, NUCLEAR FUELS, FUELING SYSTEMS  
**Control Number:** n/a  
**Copy:** SINGLE  
**Draft Date:** 30 JUL 1976  
**Decaption Date:** 01 JAN 1960  
**Decaption Note:**  
**Disposition Action:** n/a  
**Disposition Approved on Date:**  
**Disposition Authority:** n/a  
**Disposition Case Number:** n/a  
**Disposition Comment:**  
**Disposition Date:** 01 JAN 1960  
**Disposition Event:**  
**Disposition History:** n/a  
**Disposition Reason:**  
**Disposition Remarks:**  
**Document Number:** 1976STATE189488  
**Document Source:** CORE  
**Document Unique ID:** 00  
**Drafter:** IO:SCT:LNC AVANAUGH  
**Enclosure:** n/a  
**Executive Order:** N/A  
**Errors:** N/A  
**Film Number:** D760296-0583  
**From:** STATE  
**Handling Restrictions:** n/a  
**Image Path:**  
**ISecure:** 1  
**Legacy Key:** link1976/newtext/t1976073/aaaaaccp.tel  
**Line Count:** 136  
**Locator:** TEXT ON-LINE, ON MICROFILM  
**Office:** ORIGIN IO  
**Original Classification:** UNCLASSIFIED  
**Original Handling Restrictions:** n/a  
**Original Previous Classification:** n/a  
**Original Previous Handling Restrictions:** n/a  
**Page Count:** 3  
**Previous Channel Indicators:** n/a  
**Previous Classification:** n/a  
**Previous Handling Restrictions:** n/a  
**Reference:** n/a  
**Review Action:** RELEASED, APPROVED  
**Review Authority:** ElyME  
**Review Comment:** n/a  
**Review Content Flags:**  
**Review Date:** 01 JUN 2004  
**Review Event:**  
**Review Exemptions:** n/a  
**Review History:** RELEASED <01 JUN 2004 by chengls>; APPROVED <10 NOV 2004 by ElyME>  
**Review Markings:**

Margaret P. Grafeld  
Declassified/Released  
US Department of State  
EO Systematic Review  
04 MAY 2006

**Review Media Identifier:**  
**Review Referrals:** n/a  
**Review Release Date:** n/a  
**Review Release Event:** n/a  
**Review Transfer Date:**  
**Review Withdrawn Fields:** n/a  
**Secure:** OPEN  
**Status:** NATIVE  
**Subject:** JAEC'S NUCLEAR FUEL CYCLE-RELATED FIGURES PROJECTION  
**TAGS:** TECH, JA  
**To:** IAEA VIENNA  
**Type:** TE  
**Markings:** Margaret P. Grafeld Declassified/Released US Department of State EO Systematic Review 04 MAY 2006